

Practice 3-8**Finding and Estimating Square Roots**.....
Tell whether each expression is *rational* or *irrational*.

- | | | | |
|-----------------|------------------|--------------------|-------------------|
| 1. $-\sqrt{64}$ | 2. $\sqrt{1600}$ | 3. $\pm\sqrt{160}$ | 4. $\sqrt{144}$ |
| 5. $\sqrt{125}$ | 6. $-\sqrt{340}$ | 7. $\sqrt{1.96}$ | 8. $-\sqrt{0.09}$ |

Use a calculator to find each square root to the nearest hundredth.

- | | | | |
|--------------------|---------------------|----------------------|---------------------|
| 9. $\sqrt{20}$ | 10. $\sqrt{73}$ | 11. $-\sqrt{38}$ | 12. $\sqrt{130}$ |
| 13. $\sqrt{149.3}$ | 14. $-\sqrt{8.7}$ | 15. $\sqrt{213.8}$ | 16. $-\sqrt{320.7}$ |
| 17. $\sqrt{113.9}$ | 18. $-\sqrt{840.6}$ | 19. $-\sqrt{1348.9}$ | 20. $\sqrt{928.2}$ |

Simplify each expression.

- | | | | |
|-------------------|-------------------------------|---------------------------|--------------------------------|
| 21. $\sqrt{49}$ | 22. $-\sqrt{2.25}$ | 23. $\sqrt{\frac{1}{16}}$ | 24. $\sqrt{400}$ |
| 25. $\sqrt{6.25}$ | 26. $\pm\sqrt{\frac{36}{25}}$ | 27. $\sqrt{196}$ | 28. $\sqrt{2.56}$ |
| 29. $\sqrt{0.25}$ | 30. $\pm\sqrt{\frac{9}{100}}$ | 31. $\sqrt{576}$ | 32. $\pm\sqrt{\frac{121}{36}}$ |
| 33. $\sqrt{1600}$ | 34. $-\sqrt{0.04}$ | 35. $\sqrt{2500}$ | 36. $\sqrt{4.41}$ |

Between what two consecutive integers is each square root?

- | | | | |
|---------------------|---------------------|---------------------|--------------------|
| 37. $\sqrt{40}$ | 38. $\sqrt{139}$ | 39. $-\sqrt{75}$ | 40. $\sqrt{93}$ |
| 41. $-\sqrt{105.6}$ | 42. $-\sqrt{173.2}$ | 43. $\sqrt{1123.7}$ | 44. $\sqrt{216.9}$ |

Solve the following problems. Round to the nearest tenth if necessary.

45. You are to put a metal brace inside a square shipping container. The formula $d = \sqrt{2x^2}$ gives the length of the metal brace, where x is the length of the side of the container. Find the length of the brace for each container side length.

a. $x = 3$ ft

b. $x = 4.5$ ft

c. $x = 5$ ft

d. $x = 8$ ft

46. You are designing a cone-shaped storage container. Use the formula $r = \sqrt{\frac{3V}{\pi h}}$ to find the radius of the storage container. Find the radius when $V = 10,000$ ft³ and $h = 10$ ft.